GSM SECURITY AND CONTROL SYSTEM

GSM021

Manual v1.0

Safety instructions

Please read and follow these safety guidelines in order to maintain safety of operators and people around:

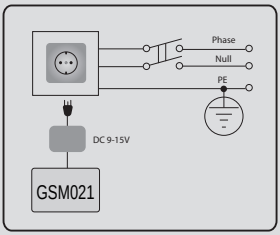
- Alarm and control system GSM021 (later referenced as system) has radio transceiver operating in GSM850/900/1800/1900 bands.
- Don't use the system where it can be interfere with other devices and cause any potential danger.
- Don't use the system with medical devices.
- Don't use the system in hazardous environment.
- Don't expose the system to high humidity, chemical environment or mechanical impacts.
- Don't attempt to personally repair the system.
- System label is on the bottom side of the device.

System GSM021 is a device mounted in limited access areas. Any system repairs must be done only by qualified, safety aware personnel.

The system must be powered by main 9-15V ⎓ 300mA power supply which must be approved by LST EN 60950-1 standard and be easily accessible.

Any additional devices linked to the system GSM021 (computer, sensors, relays etc.) must be approved by LST EN 60950-1 standard.

External power supply must be reachable and can be connected to AC mains only inside installation room with automatic 2-pole circuit breaker capable of disconnecting circuit in the event of short circuit or over-current condition. Open circuit breaker must have a gap between connections of more than 3mm.



Mains power must be disconnected before any installation or tuning work starts. The system installation or maintenance must not be done during stormy conditions.

The device is switched off by 2-pole circuit breaker.

Fuse F1 type – miniSMDC 0,5A. Replacement fuses have to be exactly the same as indicated by the manufacturer.

The WEEE (Waste Electrical and Electronic Equipment) marking on this product (see right) or its documentation indicates that the product must not be disposed of together with household waste. To prevent possible harm to human health and/or the environment, the product must be disposed on in an approved and environmentally safe recycling process. For further information on how to dispose of this product correctly, contact the system supplier, or the local authority responsible for waste disposal in your area.

Package content:

1. GSM021 ..... qty. 1
2. GSM021 User Manual..... ..... qty. 1

About User Manual

This document describes remote alarm system GSM021, it's installation and operation. It is very important to read User Manual before start using the system.

1. General Information

1.1 Function

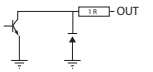
GSM021 is a microcontroller based device used to inform users about the alarm in automatic or security systems and control one electric appliance – open collector.

1.2 Operation description

Alarm and control system GSM021 works over GSM network. It works 24/7, i. e. it always reacts to the incoming signal.
The system has two digital inputs (normal open). When the alarm siren, motion sensor, fire alarm sensor, door sensor, any other sensor or PGM output gets activated, GSM021 system sends an SMS messages or calls to both User1 and User2 numbers. User1 and User2 numbers must be entered into SIM card memory, it is also possible to enter User1 only. Any number format can be used, for example +37011111111, 861111111 or even short numbers like 111. Users can choose which way the system informs about triggered zones. By default, SMS mode is enabled and SMS message with the name of the triggered input (zone) is being sent to both users (for example – ‚Triggered ZONE1' or ‚Triggered ZONE2'). When triggered zone is restored, the system sends SMS about restored zone and turns back to the previous status (for example – ‚Restored ZONE1' or ‚Restored ZONE2'). If system calling mode is enabled, at first the system will call to User1 and then to User2. If user answers to the system call, it will last for 10 seconds and then system will hang up.
GSM021 can control 1 electronic appliance (an open collector) from a GSM phone of any of the users. For example, users can turn on or off the heating, lighting, lift the gates, blinds etc. The system remembers the status of output in case of temporary electricity failures.
The system will ignore requests and calls coming from unknown telephone numbers. If user calls to the GSM021, it will answer the call. This function is useful to check if the system is working correctly.

1.3 Technical Specifications

Electrical and mechanical specifications

Supply voltage	9-15V ⎓ 300mA max
Current used in standby mode	30mA max
GSM modem frequency	850/900/1800/1900 Mhz
Number of digital inputs (normal open)	2
Allowable digital input voltage values	0-30V
Impulse duration	>600ms
Number of outputs	1
Output max parameters	Current - 500mA, voltage - 30V
Output circuit	 Open collector output. Output is pulled to COM when enabled.
Dimensions	108x52x30mm
Operating temperature range	-35…+55°C

1.4 Connector Functionality

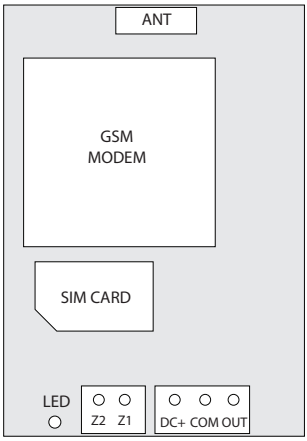


Fig. No. 1

Short explanation of the main units

GSM MODEM	GSM network 850/900/1800M/1900 MHz modem
SIM CARD	SIM card
LED	Light-emitting diodes indicator
ANT	GSM antenna

Connector functionality

Labeling	Explanation
DC+	DC+ power in connector
COM	Earth pin
OUT	Controlled output (Open collector)
Z1	Digital input Z1
Z2	Digital input Z2

1.5 Connection Circuit

USEFUL INFORMATION

When choosing GSM cellular provider, it is worth inquiring whether the service is used in security application assuring fast and reliable SMS message delivery and phone call connection.

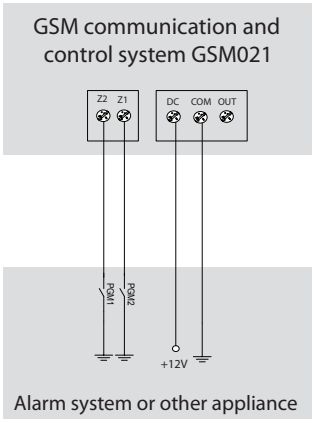


Fig. No. 2

System GSM021 and security unit COM must be connected.
Inputs Z1 and Z2 are connected to security unit PGM outputs if PGM are implemented as open collector circuit or any other circuit and if it commutates with COM.
It is also possible to connect Z1 and Z2 inputs to, for instance, motion sensor or any other sensor as well as automatics device provided the inputs are commutated with COM.

1.6 System installation

The system box should be fixed with four screws to the wall. Since the GSM021 has integrated GSM antenna, it should not be installed into the metal box. For the connection of power supply, output and inputs connectors should be used 1 thread 0,5mm2 cable. Cables should be connected to the connectors and brought through the special cover hole for cables.

1. Place SIM card in the holder but make sure that SIM card PIN code request is disabled (PIN code can be disabled by putting SIM card into mobile phone and following proper menus). SIM card should not have any remaining SMS messages.
2. Connect the circuit as shown in Fig. No.2. Power supply cables are connected last. When connecting GSM021 to security central system power supply, usually the security system AUX output is used.
3. When DC power supply is used, there is no need to connect any other power supplies.
4. The system will start in less than a minute.

To increase system reliability, it is recommended not to use prepaid SIM cards. The system would fail to send any messages upon depletion of prepaid account. Also it is recommended to disable call forwarding and voice mail.

It is worth to choose the same GSM cellular provider as most users use assuring fast and reliable SMS message delivery and phone call connection.

Even though alarm system GSM021 installation is not complicated, it is recommended to be performed by a person with basic knowledge in electrical engineering and electronics to avoid any system damage.

2. System control commands

VERY IMPORTANT!!!

Underscore symbol '_' in this manual is used to represent space. When writing SMS messages, every underscore symbol should be replaced by single space symbol. Don't leave any space at the beginning and the end of the message.

2.1 Change the way system informs about events

By default the system is set to inform users about events via SMS message. To set system to inform users via calls, user have to send SMS message to GSM021:

```
CALL
```

To change back the system to inform users via SMS, user have to send SMS message to GSM021:

```
SMS
```

2.2 Enabling/disabling zones

Enabling Zone
Any zone can be enabled by sending the following SMS message:

```
ZONE1:ON or ZONE2:ON
```

Disabling Zone
Any zone can be disabled by sending the following SMS message:

```
ZONE1:OFF or ZONE2:OFF
```

The zones can be enabled/disabled together or separately one by one.
Both zones can be disabled by sending the following SMS message:

```
ZONE1:OFF_ZONE2:OFF
```

2.3 Managing Output Controller

Alarm system GSM021 has open-collector controlled output. It can be used to control various electrical devices such as electric pumps, heating, lighting, etc. When outputs are enabled, it corresponds to output pins being pulled to COM.

Enabling output:

```
OUT:ON
```

Disabling output:

```
OUT:OFF
```

3. Technical Support

3.1 Technical Support

Indication	Possible reason
Indicator is off or not blinking	· no external power supply · circuit not properly connected · blown fuse · no network signal
Indicator blinking several times per second	· SIM card is not inserted · PIN code hasn't been disabled · Sim card is not active
System does not send any SMS messages and/or does not ring	· SIM card account depleted · incorrect SIM central number · no network signal · user number is not programmed